

LISTING OF CLAIMS

1. (Currently Amended) A method for delivering a pharmaceutical polypeptide agent through a body surface, comprising the steps of:

(a) providing a synthetic analog of a pharmaceutical parent polypeptide agent, wherein the pharmaceutical parent polypeptide agent includes said analog having at least one amino acid threonine residue and the synthetic analog of the pharmaceutical of the parent polypeptide agent has at least one threonine residue replaced with substituted by a histidine residue (His); and

(b) delivering the analog through the body surface by electrotransport.

2.-3. Canceled

4. (Previously Amended) The method of claim 1, wherein the analog exhibits at least about the same type and amount of biological activity as the parent polypeptide agent.

5. (Withdrawn) A method of modifying a pharmaceutical polypeptide agent to enhance electrotransport through a body surface, comprising:

substituting a histidine residue for one or more glutamine residues of the parent pharmaceutical polypeptide agent to form a synthetic analog of the parent agent, said analog having greater the overall charge than the charge on the parent agent at a pH of about 3.5-8.

6. (Withdrawn) A synthetic analog of a parent polypeptide, which parent polypeptide has at least one amino acid residue that has a polar but uncharged side chain, said analog having at least one of said residues substituted by a histidine residue.

7. (Withdrawn) The analog of claim 6, said analog exhibiting a biological activity at least about the same as the parent polypeptide.

8. (Withdrawn) The analog of claim 6, wherein said amino acid residue that has a polar but uncharged side chain is selected from the group consisting of glutamine, asparagine and threonine.

9. (Withdrawn) The analog of claim 8, wherein said amino acid residue having a polar but uncharged side chain is glutamine.
10. (Withdrawn) A pharmaceutical composition comprising a therapeutically effective amount of the analog of claims 6, 7, 8, or 9 and acceptable physiological carriers or excipients therefor.
11. (Withdrawn) A synthetic analog having enhanced electrotransport activity through a body surface of a parent pharmaceutical polypeptide agent, which parent has at least one residue selected from the group consisting of glutamine, threonine and asparagine, said analog having at least one of said residues substituted by a histidine residue.
12. (Withdrawn) The analog of claim 11, the analog exhibiting a biological activity at least about the same as the parent polypeptide.
13. (Withdrawn) The analog of claim 11, wherein every Gln residue in the parent polypeptide is substituted by His in the analog.
14. (Withdrawn) The analog of claim 11, wherein the overall charge of said analog is positive at a pH in the range of about 5 to 6 but substantially isoelectric at pH 7.4.
15. (Withdrawn) The analog of claim 11, wherein said analog has a greater positive charge at a pH in the range of about 5 to 6 than the parent polypeptide.
16. (Withdrawn) A composition comprising a pharmaceutical polypeptide agent modified to have at least one glutamine residue substituted by a histidine residue to form an analog wherein the analog has a greater overall charge than the charge on the agent at a pH of about 5-6 and enhances the electrotransport delivery of the agent.
17. (Previously Presented) The method of claim 1, wherein the analog is provided in the form of an anionic donor reservoir formulation for delivering the analog through the body surface by electrotransport, the formulation having a pH in the range of about 3.5 to about 7.4.
18. (Currently Amended) The method of claim 17, wherein the formulation used for delivering the analog by electrotransport has a pH in the range of about 5 to about 7.4.
19. (Withdrawn) The method of claim 1 wherein the parent polypeptide is human granulocyte colony stimulating factor.

20. (Withdrawn) The method of claim 19 wherein the residue is glutamine.
21. (Withdrawn) The method of claim 20 wherein the histadine is substituted for glutamine at positions 107, 119, 120, 131, 134, 145, 158 and 173 of the synthetic analog.
22. (Withdrawn) The method of claim 1 wherein the parent polypeptide is human parathyroid hormone.
23. (Withdrawn) The method of claim 22 wherein the residue is glutamine.
24. (Withdrawn) The method of claim 23 wherein the histadine is substituted for glutamine at position 29 of the synthetic analog.
25. Canceled
26. (Currently Amended) The A method of claim 25 for delivering a pharmaceutical polypeptide agent through a body surface, comprising:
- (a) providing a synthetic analog of a human growth hormone releasing hormone, wherein the human growth hormone releasing hormone includes at least one glutamine residue is and the synthetic analog of the human growth hormone releasing hormone has at least one glutamine residue replaced with histidine; and
- (b) delivering the analog through the body surface by electrotransport.
27. (Currently Amended) The method of claim 26 wherein the ~~histadine~~histidine is substituted for glutamine at positions 16, 24, 30 and 31 of the synthetic analog.
28. (New) The method of claim 1, wherein the parent polypeptide is human growth hormone releasing hormone.